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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 14

Application Number: 09/514,699
Filing Date: February 29, 2000
Appellant(s): Weizhong Zhao, et al.

Robert Thompson
For Appellants

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EXAMINER'S ANSWER

This is in response to appellants' brief on appeal filed in Paper No. 13 on Aug. 13, 2002.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected

by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of claims contained in the brief is incomplete. A correct statement of the status of the claims is as follows:

This appeal involves claims 1, 3-5, 7, 9, and 10.

Claims 3 and 10 have been amended subsequent to the final rejection.

Claims 11-20 have been withdrawn from consideration as not directed to the elected invention.

Claims 2, 6, and 8 have been canceled.

(4) Status of Amendments After Final

The appellants' statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is incorrect.

Contrary to appellants' summary of the invention, the subject matter recited in instant claims 1, 3-5, 7, 9, and 10 is

not drawn to liquid toners or developers. Rather, the invention recited in instant claims 1, 3-5, 7, 9, and 10 is drawn to processes for developing an image with a liquid developer obtained from a particular liquid developer concentrate. The claimed invention is described at page 12, lines 4-14, of the instant specification.

(6) Issues

The appellants' statement of the issues in the brief is substantially correct. The changes are as follows:

I. Does the claim language recited in claim 10 fail to distinctly claim the subject matter of the invention under 35 U.S.C. 112, second paragraph?

II. Does the process for developing an image with a liquid developer disclosed by US 5,345,296 (Wellings) combined with the liquid developer concentrate disclosed by US 5,254,427 (Lane), as evidenced by the EXXON product information bulletins for ISOPAR G and H, render obvious under 35 U.S.C. 103(a) the process recited in claims 1, 4, 5, 7, and 9?

III. Does the process for developing an image with a liquid developer disclosed by US 5,826,147 (Liu'147) combined with steps of dispersing a liquid developer concentrate and dispersing reclaimed "toner cake" disclosed by Wellings, and further

combined with the liquid developer concentrate disclosed by Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H, render obvious under 35 U.S.C. 103(a) the process recited in claims 1, 3-5, 7, and 9?

Note that the rejection of claim 1 under 35 U.S.C. 112, second paragraph, set forth in the Final rejection, mailed Dec. 21, 2001, Paper No. 7, paragraph 7, was withdrawn in response to the Amendment-Filed-After-Final Rejection filed in Paper No. 8¹ on Jan. 15, 2002. See the Advisory action, mailed Jan. 31, 2002, Paper No. 9.

(7) Grouping of Claims

Appellants' brief includes a statement that claims 1, 3-5, 7, and 9 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

Although appellants group the claims into two groups, Group I comprising claim 1, and Group II comprising claims 3-5, 7, and 9, appellants clearly state that the "each and every claim within each of the two groups . . . do not stand or fall together." Moreover, appellants present separate arguments as to

¹According to appellants at page 2, lines 11-13, of Paper No. 8, the "term 'developer cake' refers . . . to the deposition of the second liquid developer onto a liquid receiver member, see page 12, lines 8 and 9." In other words, the developer cake is merely a liquid developer deposited on a receiver member.

why each claim is separately patentable. (The ambiguity of the groupings and appellants' statement that the claims do not stand or fall together was queried by the examiner in the Notification of Non-Compliance with 37 CFR 1.192(c) mailed on Jul. 29, 2002, Paper No. 12, paragraph 6.)

(8) ClaimsAppealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5,826,147	Liu et al. (Liu)	10-1998
5,345,296	Wellings	9-1994
5,254,427	Lane et al. (Lane)	10-1993

EXXON product information bulletin for ISOPAR® G Solvent, issue date Jul. 1, 1994.

EXXON product information bulletin for ISOPAR® H fluid, issue dated Nov. 23, 1998.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The rejection of claim 10 under 35 U.S.C. 112, second paragraph.

I. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 is indefinite in the phrase "the reclaimed undeveloped developer cake is separated from the second liquid developer until the solids content of the second liquid developer drops below from about 6 to about 10 weight percent" for lack of antecedent basis in claim 1. Claim 1 recites that the reclaimed undeveloped developer cake is redispersed in the second developer liquid. In other words, the developer cake is dispersed in the second liquid developer in the form of toner particles or solids: there is no "developer cake" left after the redispersal recited in claim 1. It is not apparent how the redispersing toner particles or solids from the developer cake can be separated from the toner particles already present in the second liquid developer to separate the reclaimed developer cake.

The rejection of claims 1, 3-5, 7, and 9 under 35 U.S.C. 103(a) over the cited prior art.

Appellants' definition of "developer cake."

According to appellants at page 2, lines 11-13, of Paper No. 8, the term "'developer cake' refers . . . to the deposition of the second liquid developer onto a liquid receiver member, see page 12, lines 8 and 9."

II. Claims 1, 4, 5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wellings combined with Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H.

Wellings discloses a process for forming a toner image that meets the steps recited in instant claims 1, 5, 7, and 9, but for the liquid developer concentrate comprising the liquid developer reconstitution compound recited in instant claim 1. Wellings' process comprises the steps of: 1) dispersing a liquid developer concentrate in the carrier liquid of a working liquid developer solution; 2) depositing the working developer solution onto a developer roller to form a liquid developer layer; 3) developing a latent electrostatic image formed on a photoconductor with the liquid developer layer; 4) transferring the developed image to paper; 5) reclaiming the unused liquid developer from the developer roller by scraping off the unused liquid developer with a blade; and 6) returning the reclaimed liquid developer to the working developer. Col. 4, line 64, to col. 5, line 32, Fig. 1,

reference labels 14-21, 23, 24, 30, and 39. The latent electrostatic image is formed on the photoconductor by a corona discharge. Col. 4, lines 45-47, and Fig. 1, reference label 2. Wellings discloses that the concentration of toner particles in the working liquid developer can range from 2 to 10 wt%. Col. 7, lines 26-29. Because Wellings deposits his working liquid developer on a developer roller to form a "liquid developer layer," Wellings' liquid developer layer deposited on the developer roller meets the limitation of "developer cake" recited in the instant claims. See appellants' definition, supra.

Wellings further discloses that the concentration of the toner particles in the working liquid developer in the developing tank is monitored by a sensor. Col. 5, lines 24-27, and Fig. 1, reference label 33. The concentration of toner particles of the working developer is maintained at a predetermined concentration by dispersing the liquid developer concentrate in the working liquid developer. Col. 5, lines 27-32.

As noted above, Wellings does not disclose that the liquid developer concentrate comprises the liquid developer reconstitution compound recited in instant claim 1. However, Wellings discloses that his liquid developer concentrate comprises toner particles, which comprise a binder resin and a colorant, and a carrier liquid. Col. 5, lines 34-45. The liquid

developer concentrate has a high solids content, having a toner particle concentration ranging from 10 to 80 wt%. Col. 5, lines 38-45.

Lane discloses a liquid developer concentrate comprising up to 80 wt% of toner particles, a surfactant, and a carrier liquid, such as ISOPAR G or H. Col. 3, lines 18-31, col. 5, lines 5-9. The surfactant can be a polydimethylsiloxane, a polyether, or AB block copolymers having amino sites. Col. 3, line 59, to col. 4, line 52, and examples 1-6. Lane discloses that the surfactant permits easy redispersion of the toner particles at the time of use. Col. 3, lines 9-15. Lane's surfactant thus meets the liquid developer reconstitution compound recited in the instant claims. Lane discloses that his liquid developer concentrate can be easily redispersed and eliminates the need for frequent disposal of liquid from the developing apparatus. Col. 3, lines 3-8.

Neither Lane nor Wellings discloses that the working liquid developer obtained from a liquid developer concentrate is a dielectric having a conductivity of from about 0.01 to about 5 pS/cm as recited in instant claim 4. However, both Wellings and Lane disclose that the carrier liquid used in the liquid developer concentrate and in the working liquid developer can be an aliphatic hydrocarbon such as ISOPAR. Wellings, col. 5, lines 37-38; Lane, col. 4, line 68, to col. 5, line 28. Lane

discloses that ISOPAR liquids, such as ISOPAR L, G, and H, have a volume resistivity in excess of 10^9 ohm-cm and a dielectric constant below 3.0. Lane, col. 5, lines 5-10 and 37-40. EXXON product information bulletins disclose that ISOPAR G and H have a maximum specific conductivity of 5.0×10^{-14} (ohm-cm) $^{-1}$, which is 0.05 pS/cm. (1 pS/cm = 10^{-12} S/cm, where pS is a pico-siemen. 1 S/cm is equal to 1 mho/cm, which is equal to 1 (ohm-cm) $^{-1}$.) Because the carrier liquids ISOPAR G and H have a conductivity that meets the conductivity recited in the instant claims, it is reasonable to presume that the working liquid developer obtained from Lane's liquid developer concentrate is a dielectric and has a conductivity that meets the limitation recited instant claim 4. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Lane, to use Lane's liquid developer concentrate comprising a surfactant as disclosed by Lane as the liquid developer concentrate in the process disclosed by Wellings, because that person would have had a reasonable expectation of successfully obtaining a process for forming a toner image using a liquid developer concentrate, where the toner particles in the liquid developer concentrate are readily redispersed into the working liquid developer.

III. Claims 1, 3-5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu'147 combined with Wellings and Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H.

Liu'147 discloses a process for forming a toner image comprising the steps of: 1) forming a latent electrostatic image on a photoconductive imaging member by a corona discharger and image-wise exposure; 2) depositing a liquid developer solution on the photoconductive imaging member to form a "toner cake" layer from a liquid developer supply; 3) charging the "toner cake" layer in an imagewise manner by a corona discharger (i.e., scorotron device) before developing the electrostatic image with the "toner cake" to form a secondary latent image in the toner layer; 4) transferring the "toner cake" in the imaged areas of the imaging member onto a separator, leaving "toner cake" in the non-imaged areas on the imaging member, yielding a developed image on the separator; 5) transferring the developed image to a copy substrate; 6) reclaiming the "toner cake" in the non-imaged areas on the imaging member by scraping off the toner with a blade; and 7) returning the reclaimed toner to a toner sump or other reclamation vessel so that the "toner cake" can be recycled to be used again to produce the toner cake. Col. 7, lines 25-56, col. 8, lines 17-26, col. 9, lines 28-45 and 62-64, col. 12, lines 9-27 and 35-39, col. 12, line 67, to col. 13, line 12, and

Figs. 1 and 2. Liu'147 discloses that the "toner cake" formed on the imaging member from the liquid developer desirably has at least approximately 10 wt% of toner particles. Col. 9, lines 6-9.

Liu'147 does not disclose dispersing a liquid toner concentrate as recited in instant claim 1. Nor does Liu'147 explicitly disclose that the reclaimed "toner cake" is added to the liquid developer in the liquid developer supply. However, Liu'147 discloses that toner reclaiming methods disclosed in the relevant patent literature can be used in his process. Col. 13, lines 11-14.

Wellings discloses a process for dispersing a liquid developer concentrate into the carrier liquid of a working liquid developer solution for use in an electrostatic imaging forming process. Col. 1, lines 8-14 and Fig. 1. Wellings' process disperses a liquid developer concentrate in a developing tank at a rate equivalent to the consumption rate of toner particles in the working liquid developer in the developing tank. Col. 3, lines 1-5. Wellings discloses that the concentration of toner particles in the working liquid developer can range from 2 to 10 wt%. Col. 7, lines 26-29. The amount of 10 wt% toner particles in Wellings' working developer meets the desired amount of toner particles in the "toner cake" layer disclosed by Liu'147 formed from a liquid developer. Wellings further discloses that

the reclaimed unused liquid developer scraped from a developer carrier can be returned to the working liquid developer in the developing tank. Col. 5, lines 2-4. Wellings teaches that the concentration of the toner particles in the working liquid developer in the developing tank is monitored by a sensor.

Col. 5, lines 24-27, and Fig. 1, reference label 33. The concentration of toner particles of the working developer is maintained at a predetermined concentration by dispersing the liquid developer concentrate in the working liquid developer.

Col. 5, lines 27-32. Wellings discloses that his process provides a continuous process of providing a working liquid developer having a predetermined toner particle concentration versus a batch process, which is time and cost ineffective.

Col. 3, lines 16-19.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Wellings, to add the reclaimed unused "toner cake" disclosed in the process disclosed by Liu'147 to the liquid developer tank in the process disclosed by Liu'147, and to disperse a liquid developer concentrate, as disclosed by Wellings, into the liquid developer tank in the process disclosed by Liu'147, because that person would have had a reasonable expectation of successfully obtaining a liquid developer imaging process that continuously replenishes

the liquid developer, maintaining a predetermined toner particle concentration that is time- and cost-efficient.

Wellings does not disclose that the liquid developer concentrate comprises the liquid developer reconstitution compound recited in instant claim 1. However, Wellings discloses that his liquid developer concentrate comprises toner particles, which comprise a binder resin and a colorant, and a carrier liquid. Wellings, col. 5, lines 34-45. The liquid developer concentrate has a high solids content, having a toner particle concentration ranging from 10 to 80 wt%. Wellings, col. 5, lines 38-45. Neither Liu'147 nor Wellings limits the type of liquid toner used in their respective processes.

Lane discloses a liquid developer (toner) concentrate comprising up to 80 wt% of toner particles, a surfactant, and a carrier liquid, such as ISOPAR G or H. The discussion of Lane and Wellings with respect to the liquid developer concentrate in rejection II, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Lane, to use Lane's liquid developer concentrate comprising a surfactant as the liquid developer concentrate in the process rendered obvious over the combined teachings of Liu'147 and Wellings, because that person would have had a reasonable expectation of successfully obtaining a process for forming a toner image from a liquid

developer using a liquid developer concentrate where the toner particles in the liquid developer concentrate are readily redispersed into the working liquid developer.

(11) Response to Argument

I. Rejection of claim 10 under 35 U.S.C. 112, second paragraph.

Appellants assert that the reclaimed undeveloped developer cake "is not redispersed in the second liquid in the form of toner particles or solids," as asserted by examiner."

Appellants' arguments are not persuasive. Contrary to appellants' assertion, instant claim 1, from which claim 10 depends, requires the step of "redispersing the reclaimed undeveloped developer cake in the second developer liquid" (emphasis added). Appellants state that the "developer cake contains both liquids and solids." See appellants' brief, page 7, line 8. The second liquid developer usually contains toner particles dispersed in a liquid. In other words, the second liquid developer also contains "liquids and solids." The instant specification at page 9, lines 10-14, discloses that the term "redisperse" refers to "reconstituting a working liquid developer from a concentrated reclaimed developer cake . . . to achieve a liquid dispersion of the reclaimed cake" (emphasis added). Thus, the redispersion step recited in claim 1 does

require that the reclaimed undeveloped developer cake be redispersed in the second liquid developer in the form of particles.

As set forth in the rejection, the examiner stated "it is not apparent how the redispersed toner particles or solids of the reclaimed undeveloped developer cake can be separated from the toner particles already present in the second liquid toner to separate the reclaimed developer cake." Appellants do not address the examiner's query, but merely repeat the claim language recited in instant claim 10. See appellants' brief, page 7, lines 9-11, which appellants argue that the developer cake, which contains both liquids and solids, "is separated from the second liquid developer until the solids content of the second liquid developer drops below from about 6 to about 10 weight percent." Accordingly, the rejection of claim 10 stands.

II. Rejection over the combined teachings of Wellings with Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H.

A. Instant claim 1.

Appellants assert that Wellings does not teach the following: (1) a liquid developer reconstitution compound; (2) the dispersion of a first and second liquid developer; (3) "the formation of a second liquid developer by dispersion of a first

liquid developer concentrate in a carrier liquid into additional carrier liquid"; and (4) reclaiming the undeveloped cake from the cake bearing liquid receiver member and redispersing the reclaimed undeveloped cake in the second developer liquid. Appellants' brief, page 8. Appellants argue that "the examiner has not pointed out any suggestion in Wellings or Lane any suggestion, motivation, or incentive to modify or combine the references." Brief, pages 7 and 9.

As set forth in rejection II, supra, it is the combined teachings of Wellings and Lane that meet the steps recited in instant claim 1. Contrary to appellants, as discussed in the rejection above, Wellings teaches items (2) through (4) above.

As discussed in rejection II, Wellings teaches dispersing a liquid developer concentrate [i.e., a first liquid developer concentrate] in a carrier liquid of a working developer solution [i.e., a second liquid developer] (item 2). Col. 5, lines 29-32, and Fig. 1, labels 23, 30 and 39. See rejection II, first paragraph, step (1). Wellings' liquid developer concentrate comprises toner particles, which comprises a binder resin and a colorant, and a carrier liquid. Col. 5, lines 33-37. See rejection II, third paragraph. Thus, Wellings' step (1) meets the dispersing step (item 3), but for the presence of the reconstitution compound recited in instant claim.

Wellings teaches reclaiming the unused liquid developer [i.e., the undeveloped developer cake] from the developer roller [i.e., cake bearing liquid receiver member]. Wellings teaches returning the reclaimed liquid developer [the unused liquid developer scraped off the developer roller] to the working developer [i.e., second liquid developer]. Col. 5, lines 2-4, and Fig. 1, labels 17, 21, 23, and 24. See rejection II, first paragraph, steps (5) and (6). In particular, Wellings at col. 5, lines 2-4, discloses that “[t]he scrapers clean the developing rollers at all times. The developer solution is returned to a developing tank 23 through a return line 24.” Wellings' steps (5) and (6) thus meet the reclaiming step and redispersing the reclaimed undeveloped developer cake step (item 4) recited in instant claim 1.

The reasons for combining the references do not have to be those of applicants. There is no teaching in either Wellings nor Lane that excludes the use of Lane's liquid developer concentrate in Wellings' process. As discussed in the rejection, Lane's liquid developer concentrate meets Wellings' requirements of a liquid developer concentrate. See rejection II, supra, paragraphs 3 and 4. Moreover, Lane's liquid developer concentrate comprises a surfactant, which meets the limitation of the liquid developer reconstitution compound recited in the

instant claims (item 1). Appellants have not shown that Lane's surfactant is not a liquid developer reconstitution compound.

Appellants argue that "the fact that the prior [sic: art] could have been modified dose [sic] not make the modification obvious when there is no suggestion of the desirability of such a modification." Brief, page 10, lines 18-20, and page 11.

However, Lane teaches the advantages of using his liquid developer concentrate. In particular, Lane teaches that his liquid developer concentrate can be easily dispersed and eliminates the need for frequent disposal of liquid from the developing apparatus. See rejection II, fourth paragraph. Thus, Lane provides a reason, suggestion, and motivation to a person having ordinary skill in the art to use Lane's liquid developer concentrate as the liquid developer concentrate in the image forming process disclosed by Wellings.

Accordingly, for the reasons set forth above and in rejection II, the combined teachings of Wellings and Lane render obvious the instantly claimed process recited in claim 1.

B. Instant claim 3.

Appellants' arguments that neither Wellings nor Lane teach the limitation recited in claim 3 are moot because claim 3 was not rejected over the combined teachings of Wellings and Lane.

C. Instant claim 4.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the limitation recited in claim 4, wherein the second liquid developer is a dielectric. Brief, page 15.

As discussed in IIA, supra, the combined teachings of Wellings and Lane meet the steps recited in instant claim 1. Furthermore, as discussed in rejection II, supra, the examiner has presented a reasonable evidentiary basis in support of the presumption that a working liquid developer [i.e., second liquid developer] obtained from Lane's liquid developer concentrate [i.e., first liquid developer concentrate] is a dielectric as recited in instant claim 4. The evidentiary basis is based on the teachings in Wellings and Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H. See rejection II, the fifth paragraph. Appellants have not come forward with any factual evidence to suggest otherwise. See In re Spada, 15 USPQ2d 1655, 1657, n.2 (Fed. Cir. 1990) (prima facie case of unpatentability shifts burden to applicant to rebut the rejection). Accordingly, the rejection of claim 4 over the combined teachings of Wellings and Lane, as evidenced by the EXXON product information bulletins, stands.

D. Instant claim 5.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the limitation of claim 5, wherein "there is continuous measuring of the solids content or solids concentration of the second liquid developer in the [sic] a developer sump." Brief, page 17.

As discussed in IIA, supra, the combined teachings of Wellings and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection II, supra, Wellings teaches that the concentration of the toner particles [i.e., solids content or solids concentration] in the working liquid developer [i.e., second liquid developer] in a developing tank [i.e., developing sump] is continuously monitored by a sensor. Col. 5, lines 24-27 and 27-32, and Fig. 1, reference label 33. See rejection II, the second paragraph. Wellings' monitoring of the working liquid developer thus meets the monitoring step recited in instant claim 5. Accordingly, the combined teachings of Wellings and Lane meet the step recited in instant claim 5.

E. Instant claim 7.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the step of transferring the developed image to a receiver substrate recited in claim 7. Brief, page 17.

As discussed in IIA, supra, the combined teachings of Wellings and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection II, supra, Wellings teaches transferring the developed image to paper [i.e., receiver substrate]. Col. 5, lines 5-7. See the rejection, the first paragraph, Wellings' step (4). See also, Fig. 1, reference label 4a and 25. Wellings' step (4) thus meets the transfer step recited in instant claim 7. Accordingly, the combined teachings of Wellings and Lane meet the step recited in instant claim 7.

F. Instant claim 9.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the limitation of claim 9 that the reclaimed developer cake is combined directly with the second liquid developer. Brief, page 17.

As discussed in IIA, supra, the combined teachings of Wellings and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection II, supra, Wellings teaches returning the unused liquid developer solution scraped off the developer roller [i.e., reclaimed undeveloped liquid developer cake from the cake bearing liquid receiver member] to the working developer [i.e., second liquid developer]. Col. 5, lines 2-4, and Fig. 1, labels 23 and 24. See rejection II, first

paragraph, step (6). In particular, Wellings at col. 5, lines 3-4, discloses that "the developer solution [i.e., the unused liquid developer scraped off the developer roller 17] is returned to a developer tank 23 [i.e., developer sump] through return line 24." Wellings' step (6) thus meets the step of redispersing the reclaimed developer directly into the second developer as recited in instant claim 9. Accordingly, the combined teachings of Wellings and Lane meet the step recited in instant claim 9.

Thus, for the reasons set forth above and in rejection II, appellants have not rebutted the examiner's prima facie case of obviousness over the combined teachings of Wellings and Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H. Nor have appellants come forward with evidence of unexpected results commensurate in scope with the instant claimed subject matter. Accordingly, the rejection stands.

III. Rejection over the combined teachings of Liu'147 with Wellings and Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H.

A. Instant claim 1.

Applicants assert that Liu'147 does not teach the following:

- (1) the use of a second liquid developer; and (2) redispersing

the reclaimed developer cake in the second liquid developer. Brief, page 9, lines 19-20. Appellants further argue that there is no reason or suggestion in Liu'147, Wellings, and Lane to combine their teachings to arrive at the instant claimed process. Brief, page 9, lines 9-18.

As set forth in rejection III, supra, the combined teachings of Liu'147, Wellings, and Lane meet the steps recited in instant claim 1.

As discussed in rejection III, supra, Liu'147 teaches returning the reclaimed toner [unused toner cake scrapped off the imaging member] to a toner sump or other reclamation vessel so that the "toner cake" can be recycled to be used again to produce the toner cake. See Liu'147, Fig. 1, and col. 13, lines 3-11. See rejection III, first paragraph, step (7). Liu'147 discloses that toner reclaiming methods disclosed in the relevant patent literature can be used in his process. Col. 13, lines 11-14. See rejection III, the second paragraph. In particular, Liu'147 at col. 13, lines 3-11, discloses that "Fig. 1 illustrates a simple blade cleaning apparatus 90 for scraping the imaging member surface as is well known in the art . . . the removed toner associated with the background image is transported to a toner sump or other reclaim vessel so that the waste toner can be recycled and used again to produce the toner cake in subsequent imaging cycles."

As discussed in rejection III, Wellings discloses a process comprising the step of dispersing a liquid developer concentrate [i.e., a first liquid developer concentrate] into the carrier liquid of a working liquid developer solution [i.e., a second liquid developer] for use in an electrostatic image forming process (item 1). Wellings also teaches redispersing reclaimed undeveloped developer cake in the second liquid developer, which is item (2). Wellings discloses the advantages of using his process. See rejection III, paragraph 3. Lane teaches a liquid developer concentrate that meets the compositional limitations recited in instant claim 1. Lane teaches the advantages of using his liquid developer concentrate. See rejection III, paragraph 5, which incorporates the discussion of Lane in rejection II; and in the rebuttal to appellants' arguments in IIA above, paragraphs 5-7, which are incorporated herein by reference.

Thus, Wellings and Lane disclose the features not taught by Liu'147. Wellings and Lane also provide sufficient reason, motivation, and suggestion to a person having ordinary skill in the art to combine the teachings of Liu'147 with those of Wellings and Lane as set forth in rejection III, supra. Accordingly, the combined teachings of Liu'147, Wellings, and Lane render obvious the process recited in instant claim 1.

B. Instant claim 3.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the limitation recited in claim 3, wherein the developer cake on the liquid receiving member is charged by a corona charger prior to developing the image. Brief, pages 12-13.

As discussed in IIIA, supra, the combined teachings of Liu'147, Wellings, and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection III, Liu'147 teaches charging the "toner cake" layer deposited on the photoconductive imaging member [i.e., the liquid receiver member] in an image-wise manner by a corona discharger prior to developing an image. Col. 9, lines 28-45; col. 12, lines 9-27; and Fig. 1. See rejection III, the first paragraph, Liu'147's steps (3) and (4). In particular, Liu'147 at col. 9, lines 30-45, discloses that the "toner layer [on the imaging member] is charged in an image-wise manner. In the case of a charged toner layer 58, as is the case in the system of Fig. 1, a charging device 60 . . . [such] as a well known scorotron device, is provided . . ." Liu'147's step (3) thus meets charging the developer cake on the liquid receiving member by a corona charger prior to developing the image recited in instant claim 3.

Accordingly, the combined teachings of Liu'147, Wellings, and Lane meet the step recited in instant claim 3.

C. Instant claim 4.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the limitation recited in claim 4, wherein the second liquid developer is a dielectric. Brief, page 15.

Applicants argue that Liu'147 does not teach or suggest a dielectric second liquid developer. Brief, page 9, lines 21-22.

As discussed in IIIA, supra, it is the combined teachings of Liu'147, Wellings, and Lane that meet the steps recited in instant claim 1. Furthermore, for the reasons discussed in rebuttal to appellants' arguments in section IIC, supra, which are incorporated herein by reference, there is ample reason to presume that the working liquid developer [i.e., second liquid developer] obtained from Lane's liquid developer concentrate [i.e., first liquid developer concentrate] is a dielectric as recited in instant claim 4. Accordingly, the rejection of claim 4 over the combined teachings of Liu'147, Wellings, and Lane, as evidenced by the EXXON product information bulletins, stands.

D. Instant claim 5.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited

in claim 1 and the limitation of claim 5, wherein "there is continuous measuring of the solids content or solids concentration of the second liquid developer in the [sic] a developer sump." Brief, page 17.

As discussed in IIIA, supra, the combined teachings of Liu'147, Wellings, and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection III, Wellings teaches that the concentration of the toner particles in the working liquid developer in the developing tank is continuously monitored by a sensor. Col. 5, lines 24-27 and 27-32, and Fig. 1, reference label 33. See rejection III, the third paragraph. Wellings' monitoring of the working liquid developer thus meets the monitoring step recited in instant claim 5. Accordingly, the combined teachings of Liu'147, Wellings, and Lane meet the step recited in instant claim 5.

E. Instant claim 7.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the step of transferring the developed image to a receiver substrate recited in claim 7. Brief, page 17.

As discussed in IIIA, supra, the combined teachings of Liu'147, Wellings, and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection III, Liu'147 teaches transferring the developed image to a copy substrate

[i.e., receiver substrate]. Col. 12, lines 37-41, and Fig. 1. See the rejection, the first paragraph, Liu'147's step (4); see in particular Fig. 1, reference sign 70, which is the copy substrate. Liu'147's step (4) thus meets the transfer step recited in instant claim 7. Accordingly, the combined teachings of Liu'147, Wellings, and Lane meet the step recited in instant claim 7.

F. Instant claim 9.

Appellants assert that "no teachings have been referred to by the examiner in the references" of the process steps recited in claim 1 and the limitation of claim 9 that the reclaimed developer cake is combined directly with the second liquid developer. Brief, page 17.

As discussed in IIIA, supra, the combined teachings of Liu'147, Wellings, and Lane meet the steps recited in the instant claim 1. Furthermore, as discussed in rejection III, supra, Wellings teaches returning the reclaimed liquid developer to the working developer [i.e., second liquid developer]. Col. 5, lines 2-4. See rejection III, paragraph 3. In particular, Wellings at col. 5, lines 3-4, discloses that "the developer solution is returned to a developer tank 23 [i.e., developer sump] through return line 24." Wellings' step thus meets redispersing the reclaimed developer directly into the second liquid developer recited in instant claim 9. Accordingly, the

combined teachings of Liu'147, Wellings, and Lane meet the step recited in instant claim 9.

Thus, for the reasons set forth above, appellants have not rebutted the examiner's prima facie case of obviousness over the combined teachings of Liu'147, Wellings, and Lane, as evidenced by the EXXON product information bulletins for ISOPAR G and H. Nor have appellants come forward with evidence of unexpected results commensurate in scope with the instant claimed subject matter. Accordingly, the rejection stands.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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JLD
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